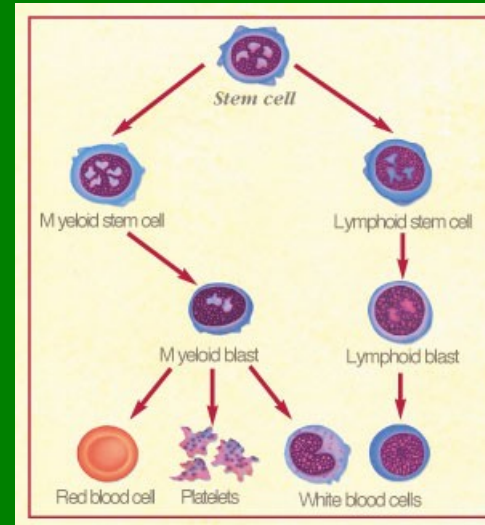
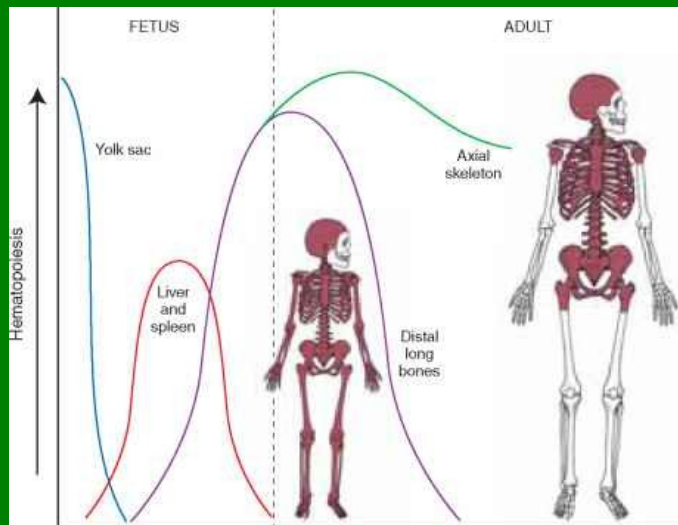
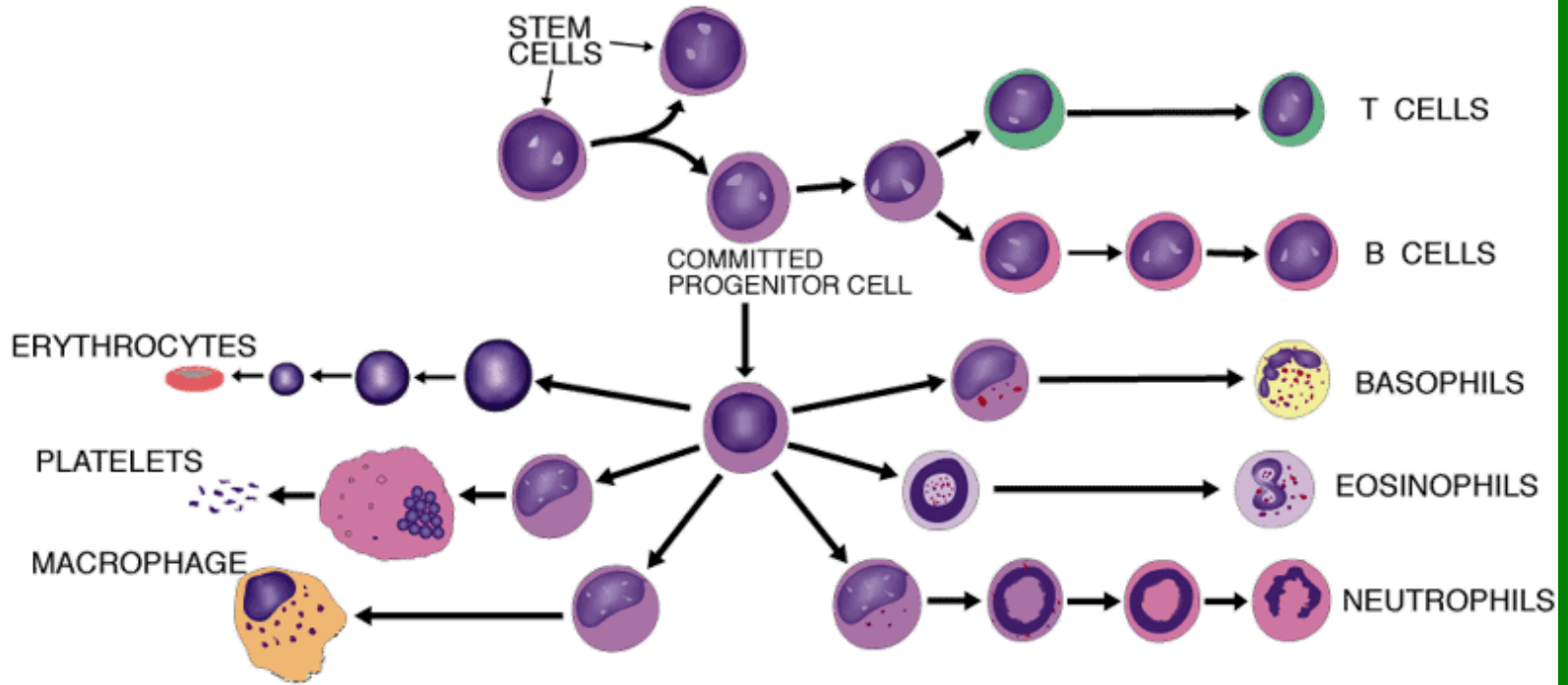


Hematopoéza

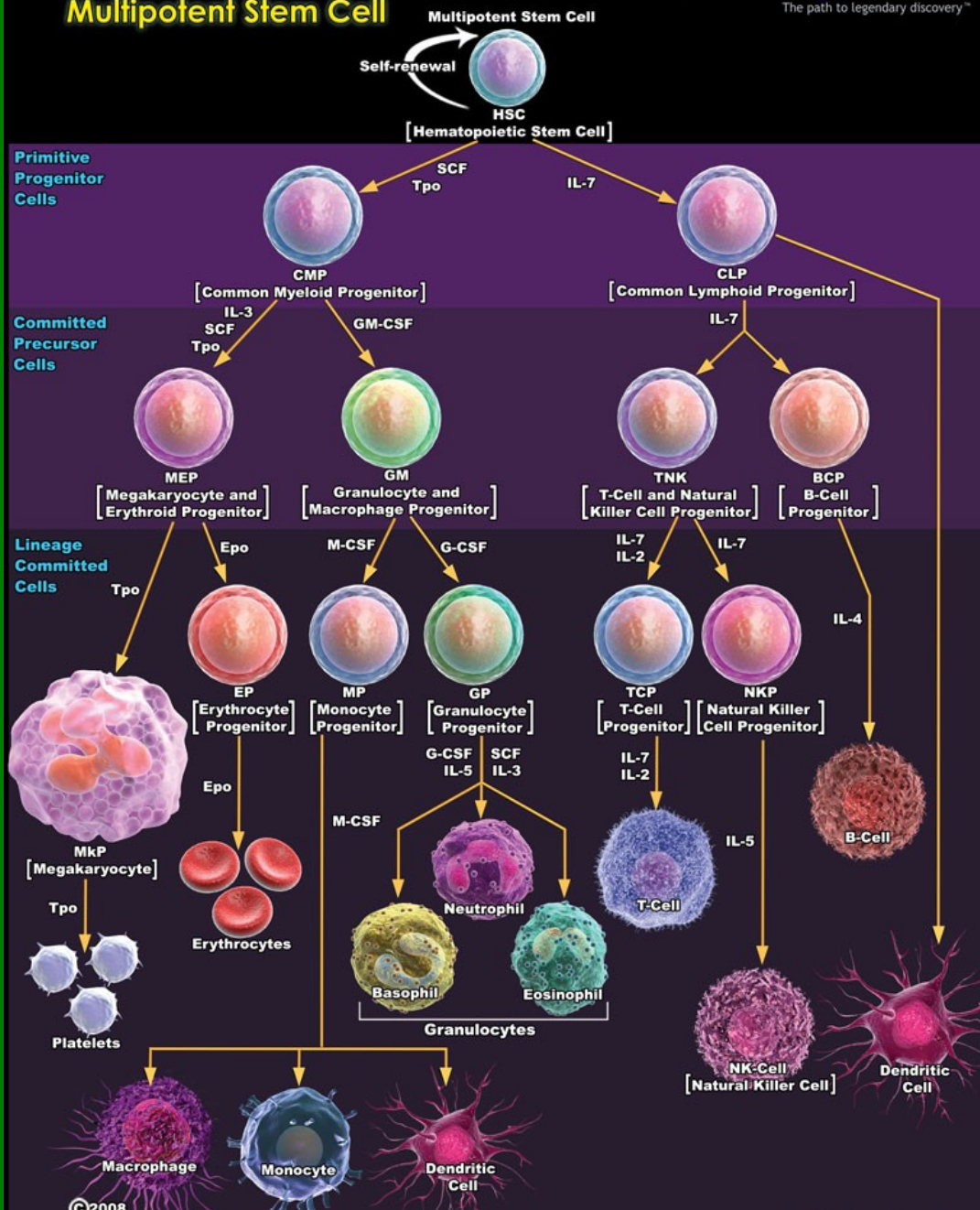
Bourková L., OKH FN Brno

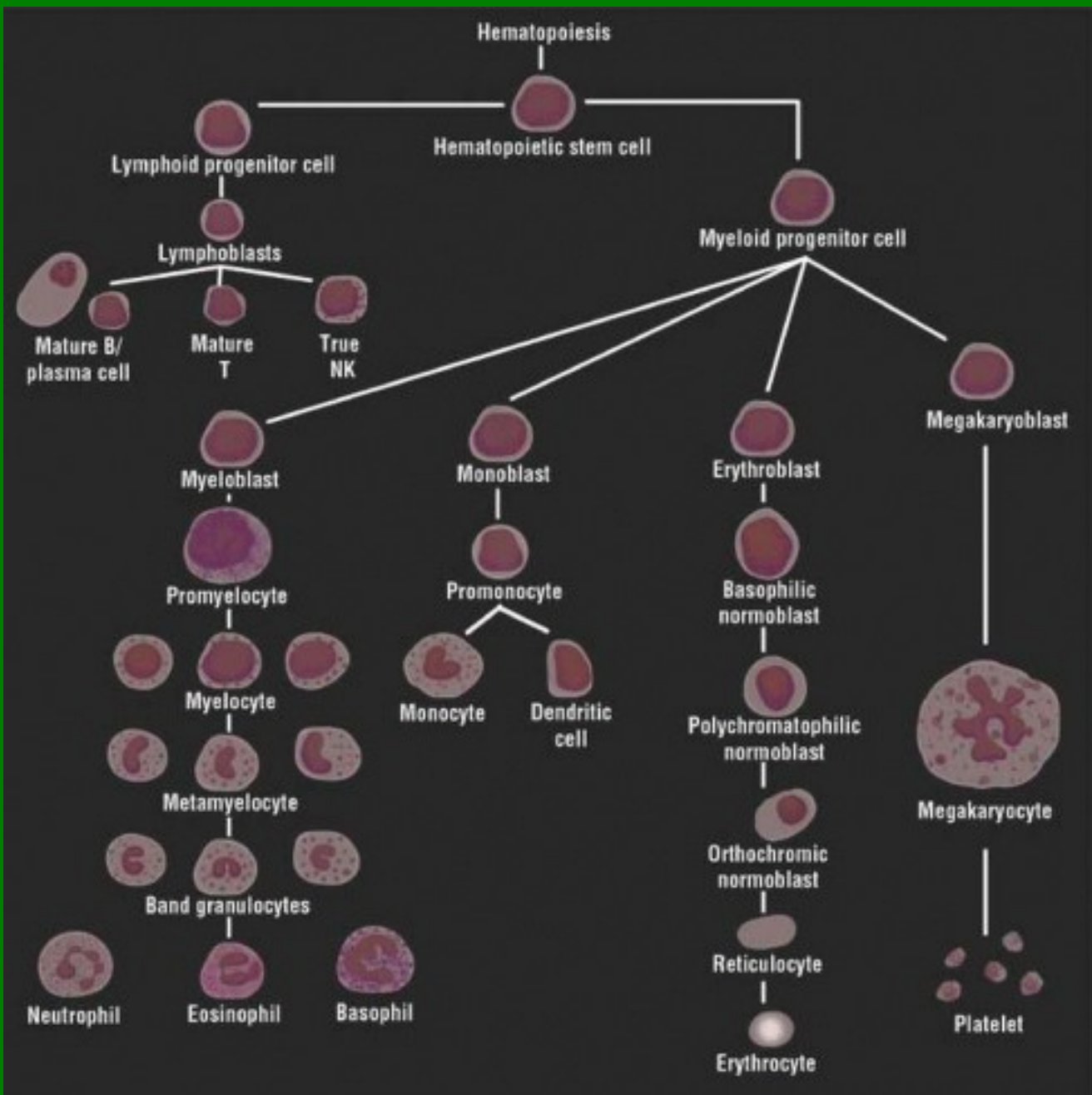
- bílé krvinky – leukocyty – WBC (*White Blood Cells*)
- červené krvinky – erytrocyty – RBC (*Red Blood Cells*)
- krevní destičky – trombocyty – PLT (*Platelets*)

HEMATOPOIESIS



Hematopoiesis from Multipotent Stem Cell



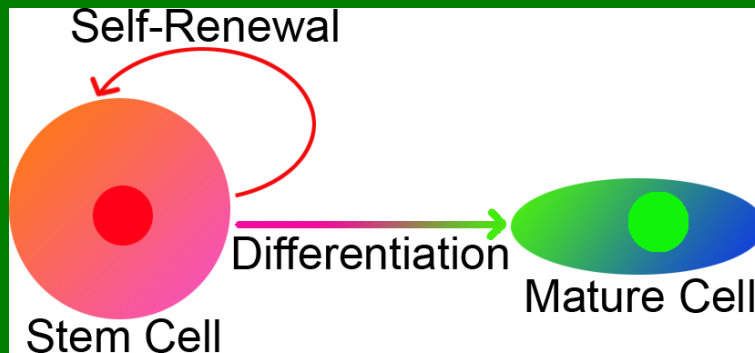


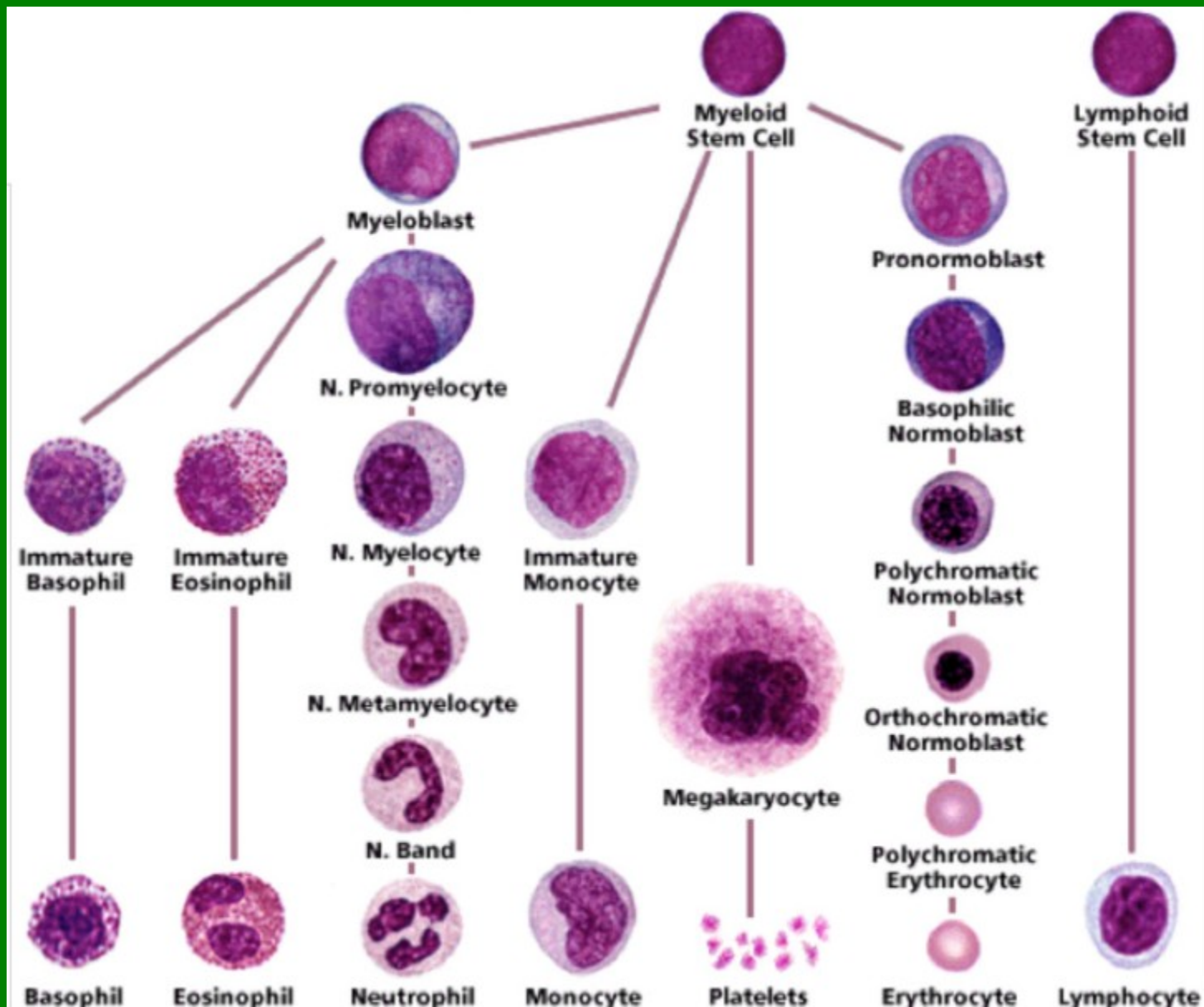
Hematopoiesis

Proliferative potential



differentiation





WHITE BLOOD CELL

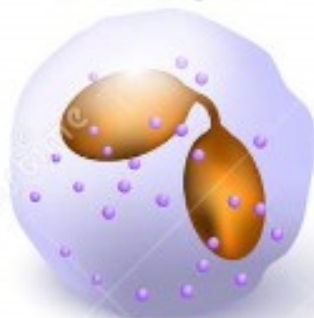
Granulocytes

Neutrophil



(phagocytosing a bacteria and other pathogens)

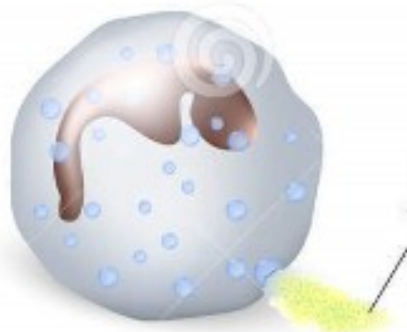
Eosinophil



(control mechanisms associated with allergy)

Basophil

(contain histamine and heparin)



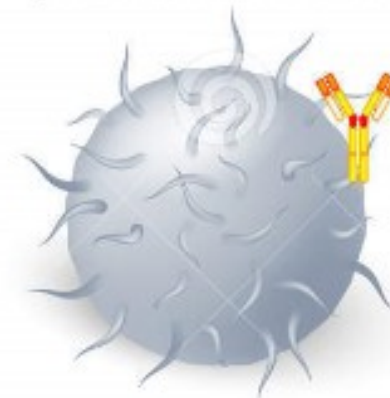
Histamine release from the basophils

Agranulocytes

Monocyte (phagocytosis)



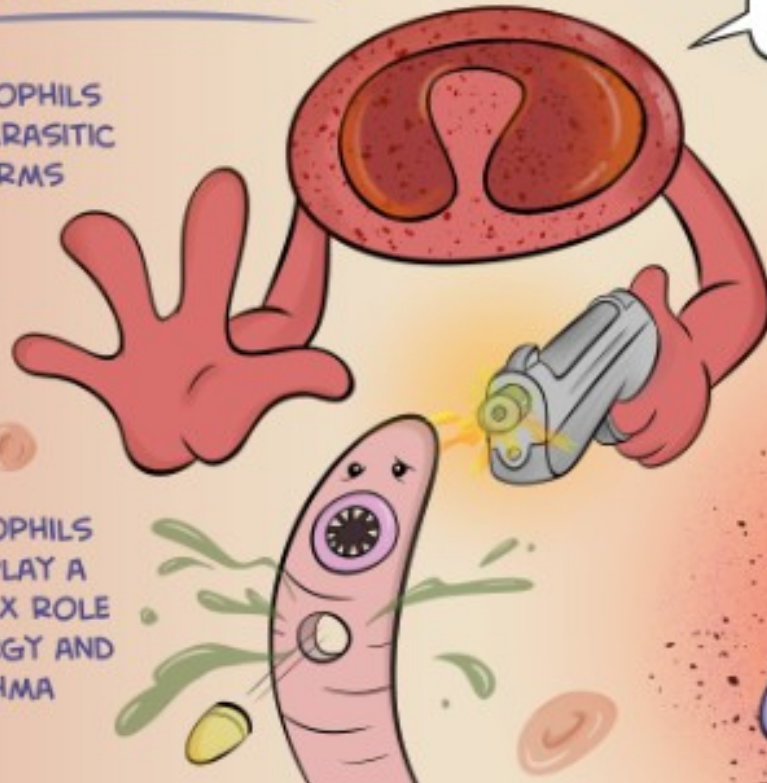
Lymphocyte (secretion of antibodies)



GRANULOCYTES

EOSINOPHILS
KILL PARASITIC
WORMS

EOSINOPHILS
ALSO PLAY A
COMPLEX ROLE
IN ALLERGY AND
ASTHMA



HALT,
WORM!

BASOPHILS
RELEASE HISTAMINE
AND OTHER MEDIATORS
OF INFLAMMATION



NEUTROPHILS
PHAGOCYTIZE
BACTERIA

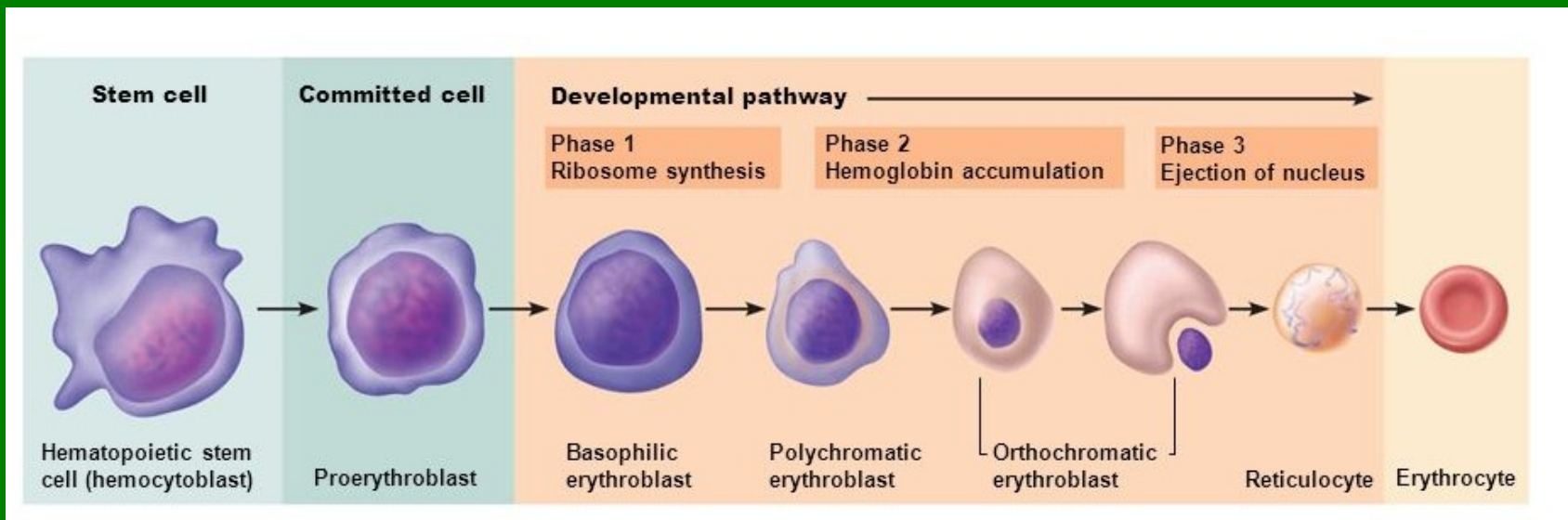
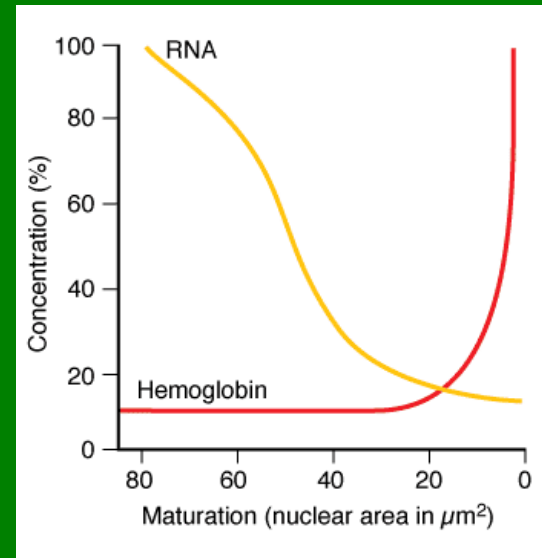


PHIL, DON'T
DO THIS!

rozdíl velikostí leukocytů



Erythropoéza



Granulopoéza

myeloblast



promyelocyte



myelocyte



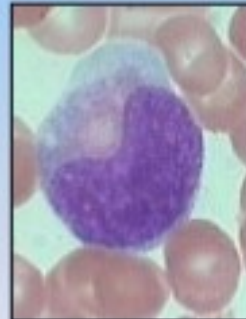
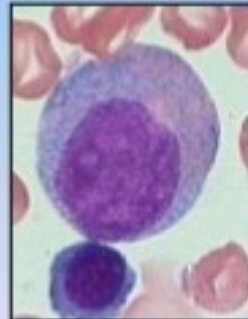
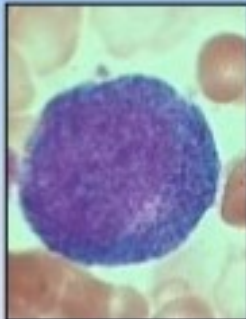
metamyelocyte

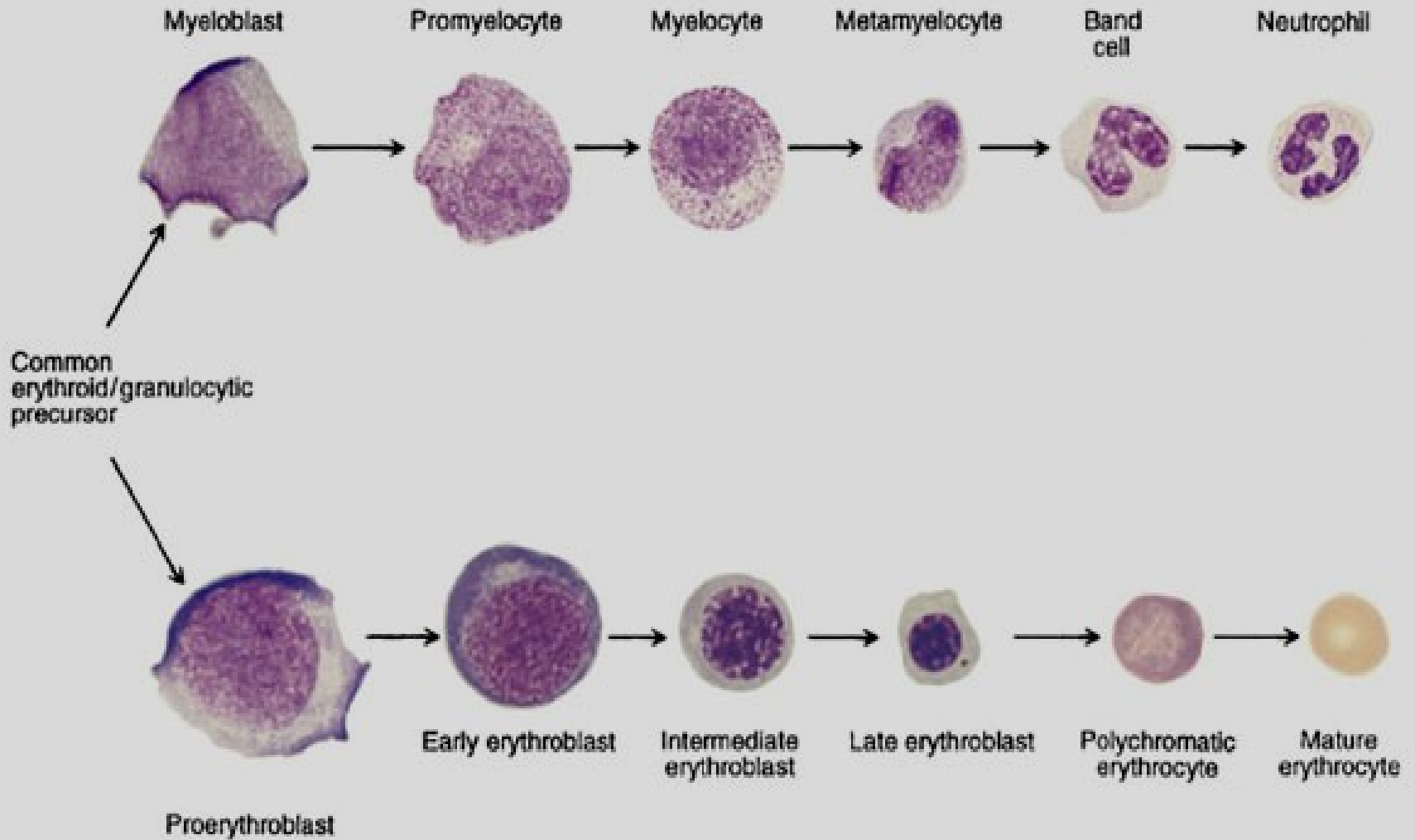


band



neutrophil



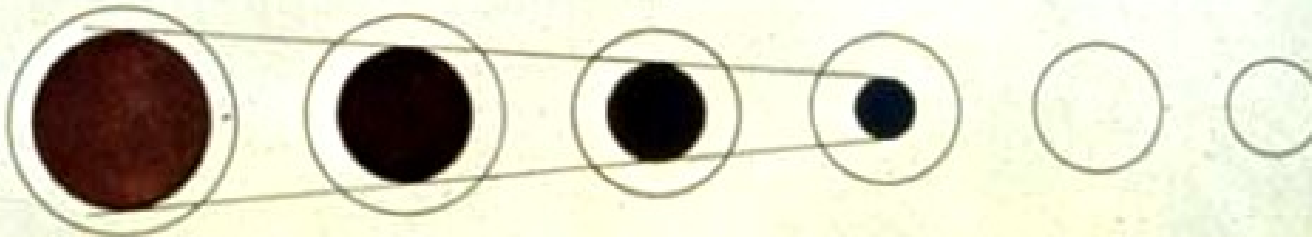


Sledování buněčných morfologických změn



A Cell size and cytoplasm color

zbarvení, obsah
cytoplazmy



B Nuclear size and color

velikost, tvar
jádra



C Nuclear chromatin structure

struktura chromatinu,
jadérka



D Composite (Left to right: Rubriblast, Pro-rubricyte, Rubricyte, Metarubricyte, Diffusely basophilic erythrocyte, Erythrocyte)

komplexní hodnocení

KOSTNÍ DŘEŇ

myeloblast

promyelocyt

neutrofilní myelocyt

eozinofilní myelocyt

bazofilní myelocyt

neutrofilní metamy

eozinofilní metamy


bazofilní metamy

proerythroblast

časný erythroblast
(bazofilní normoblast)

středně zralý erythroblast
(polychromní normoblast)

pozdní erythroblast
(ortochromní normoblast)

monoblast 

promonocyt


makrofág

magakaryoblast 

promegakaryocyt 

megakaryocyt

lymfoblast 

prolymfocyt 

plazmat. b.

neutrofilní tyč

eozinofilní tyč

bazofilní tyčí

neutrofilní segment

eozinofilní segment

bazofilní segment

retikulocyt

erytrocyt

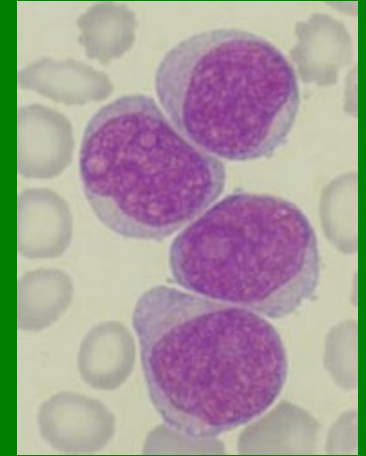
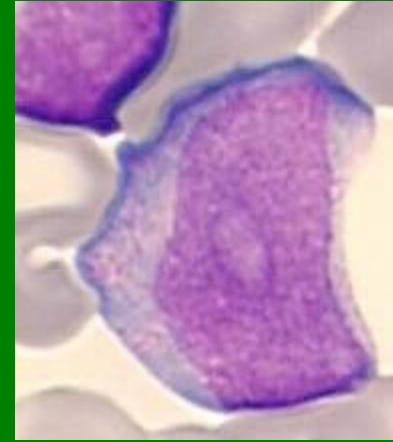
monocyt

PERIFERNÍ KREV

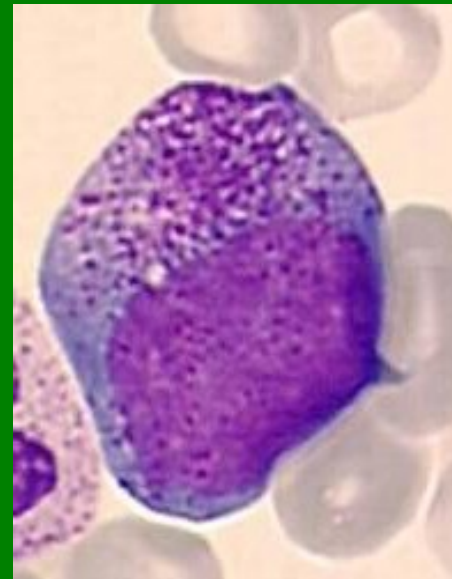
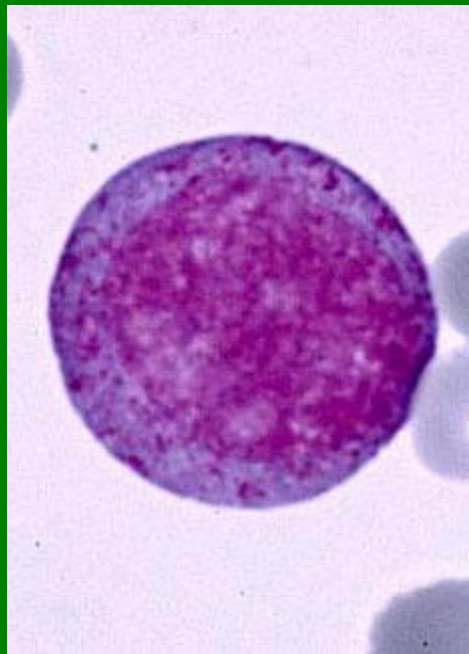
trombocyty

lymfocyt

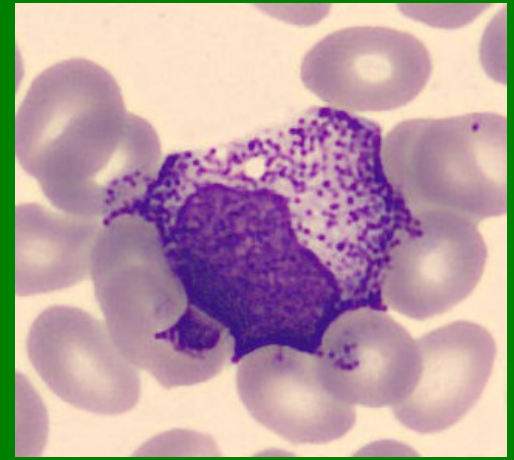
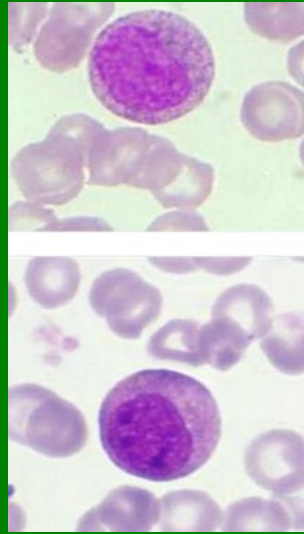
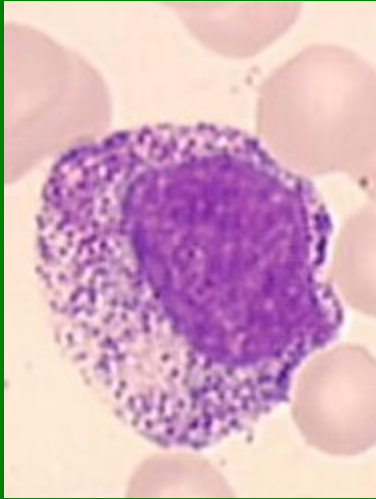
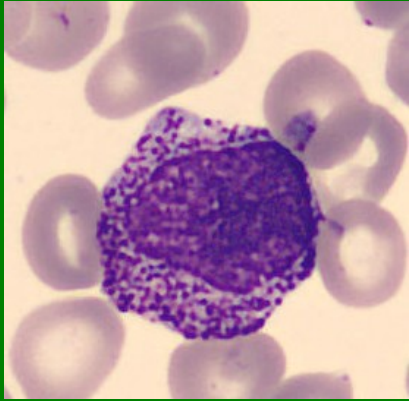
Myeloblasty



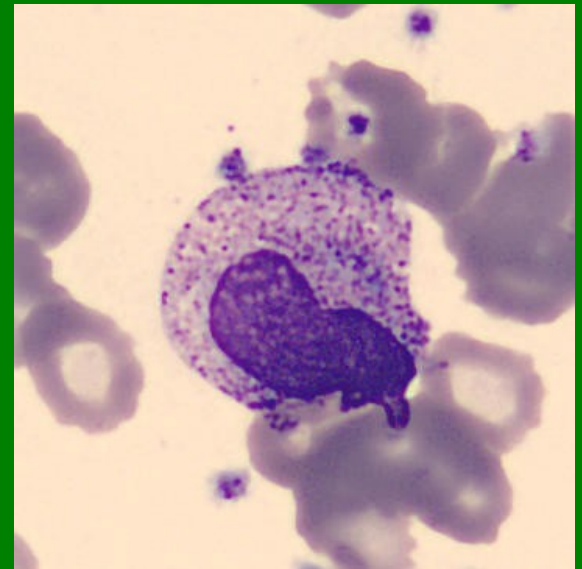
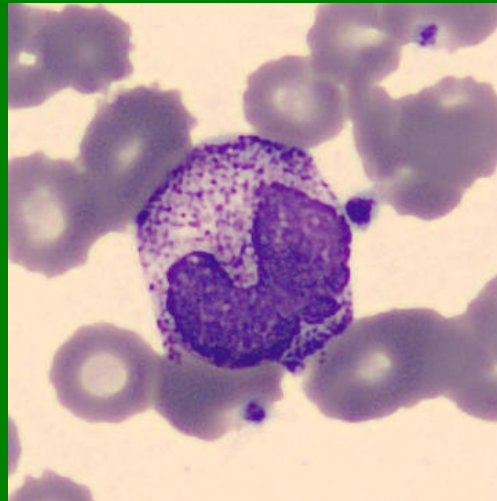
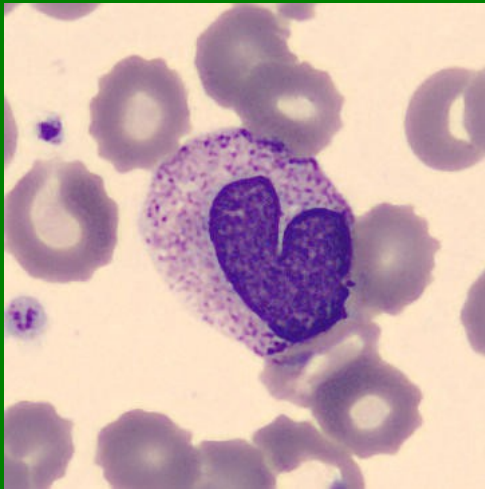
Promyelocyty



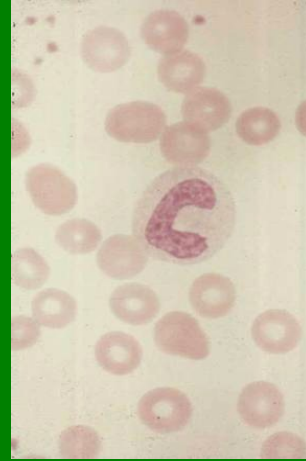
Myelocyty - Ne



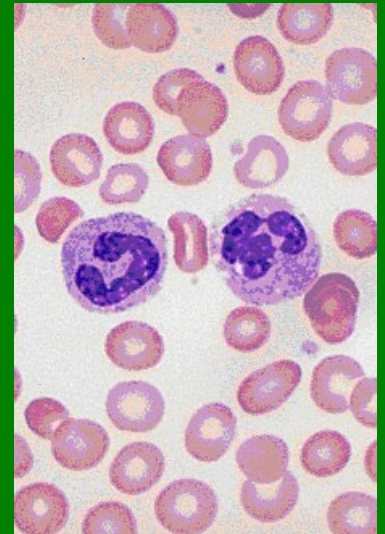
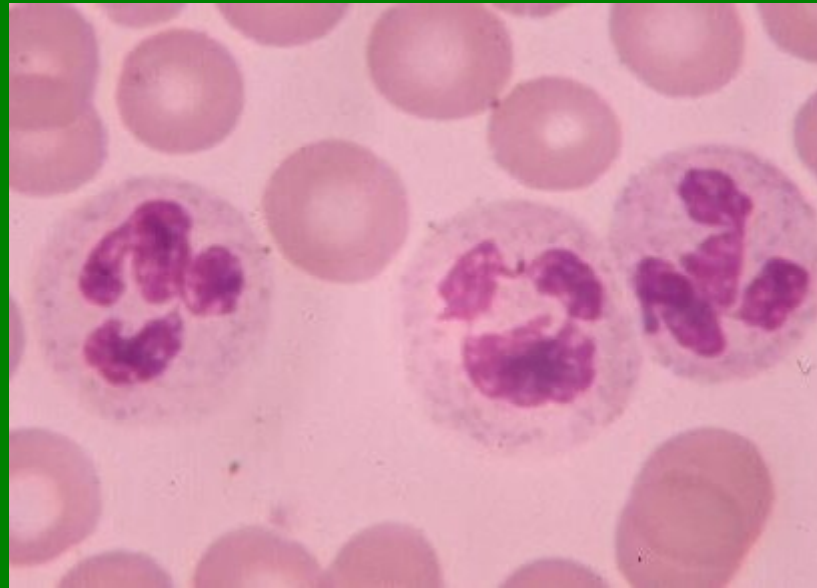
Metamyelocyty - Ne



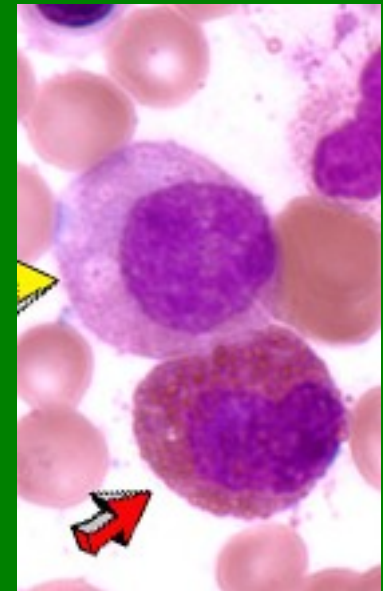
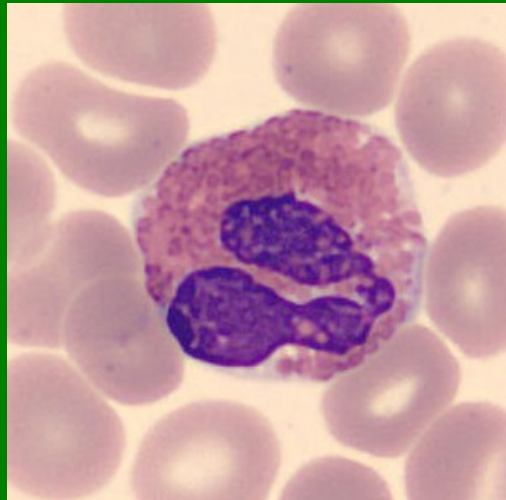
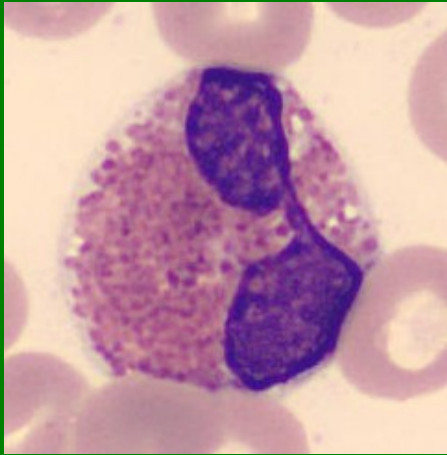
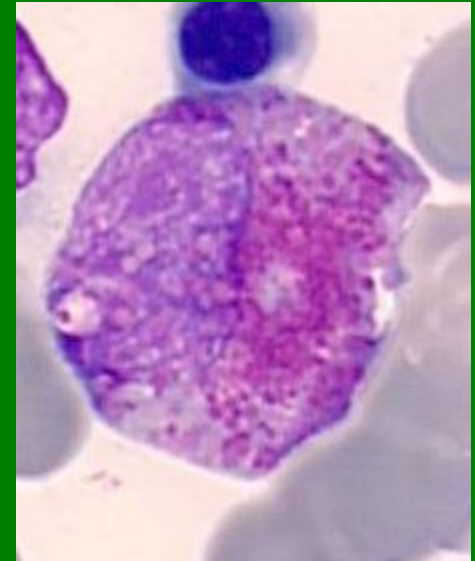
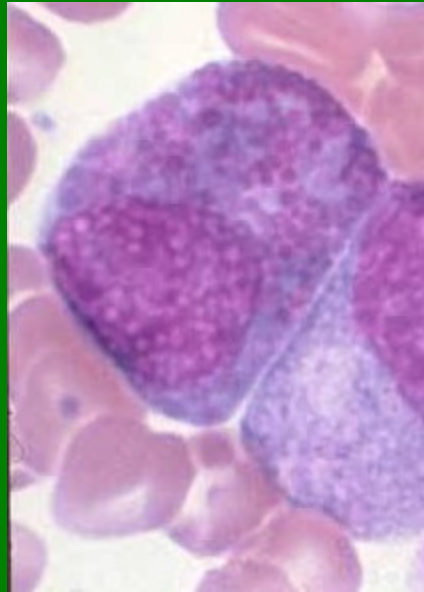
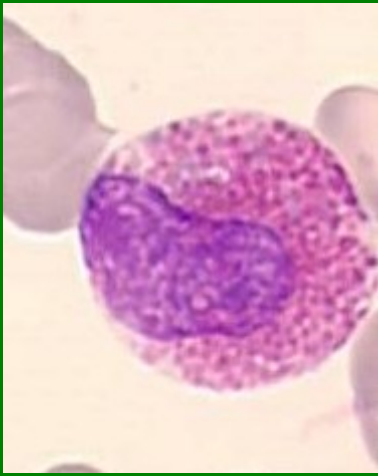
Tyč – Ne (rozdíl mezi nejširším a nejužším tvarem jádra je 1/3 až 1/2)



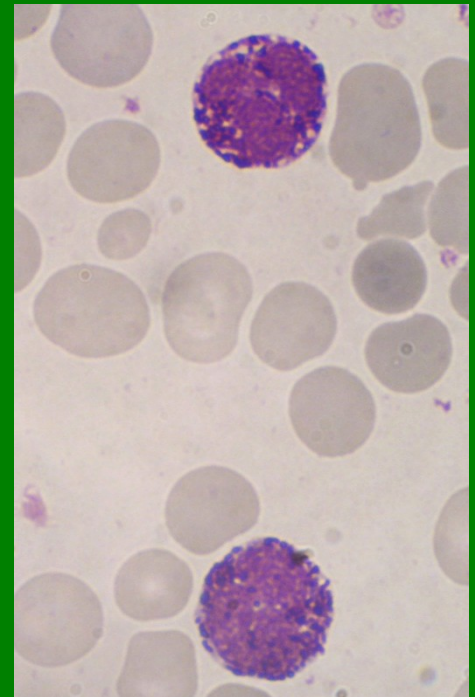
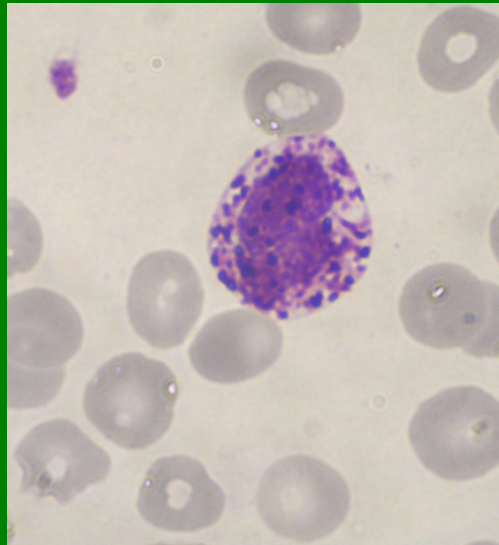
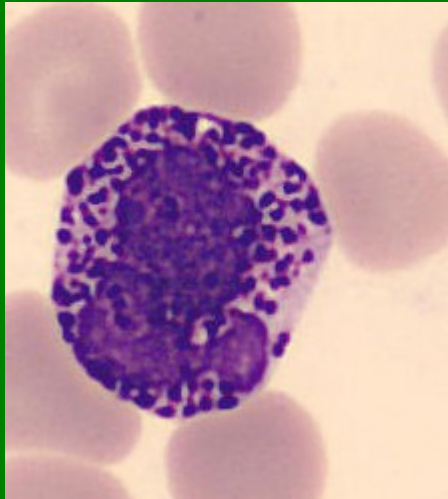
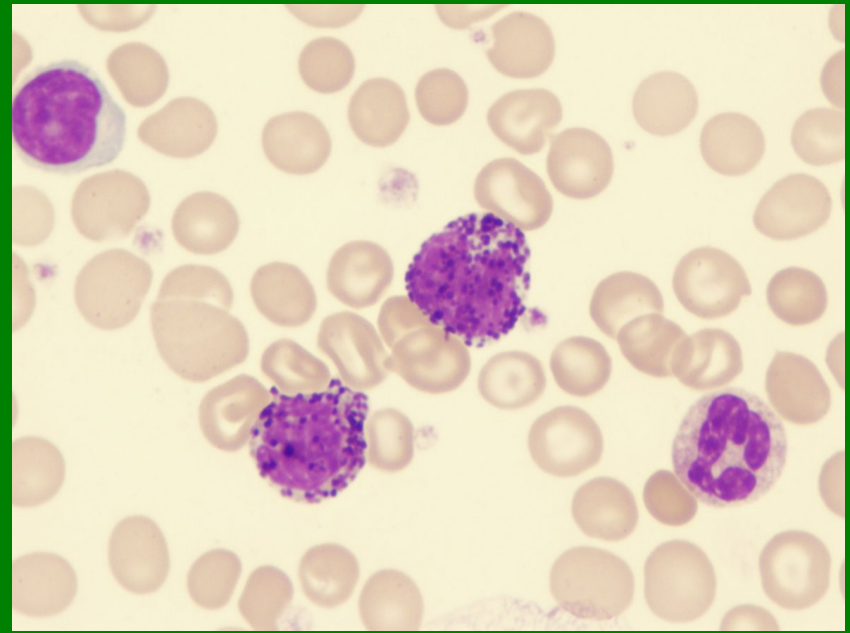
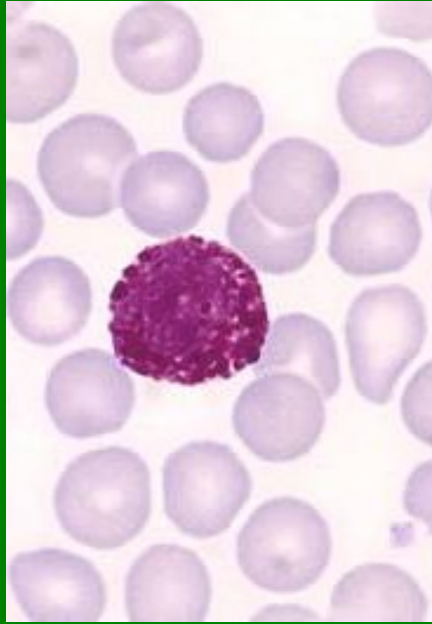
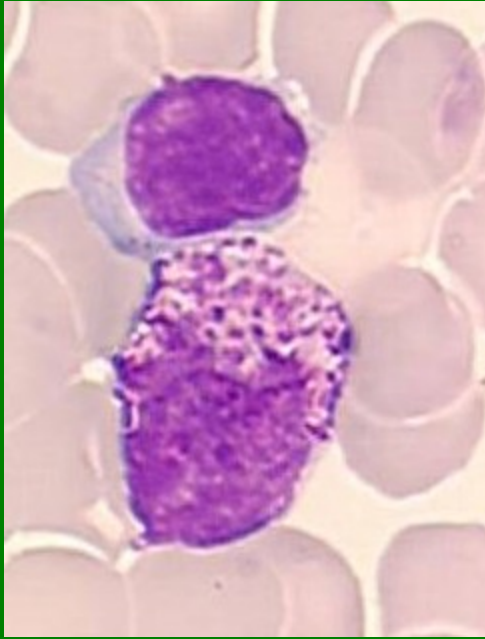
Segment - Ne



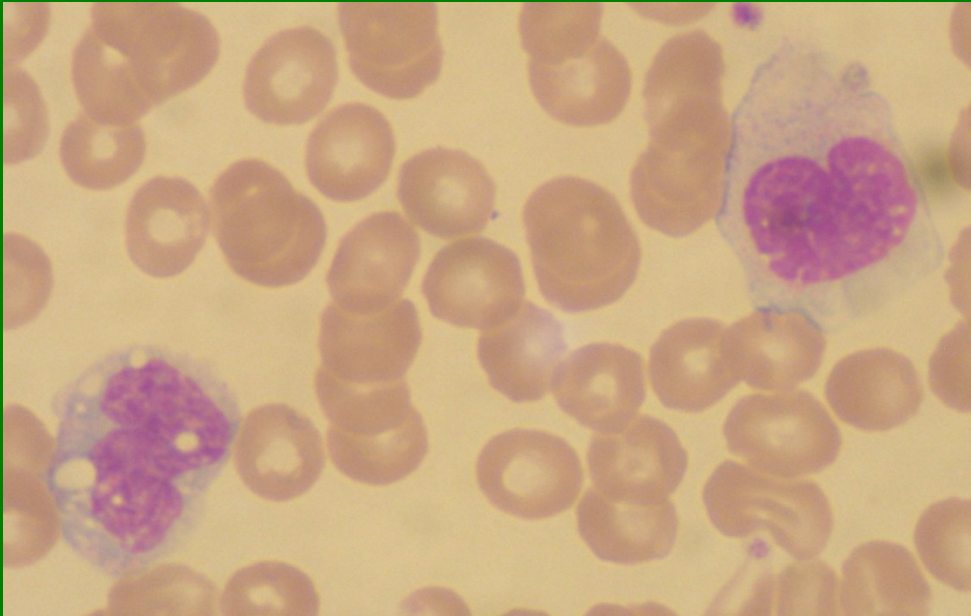
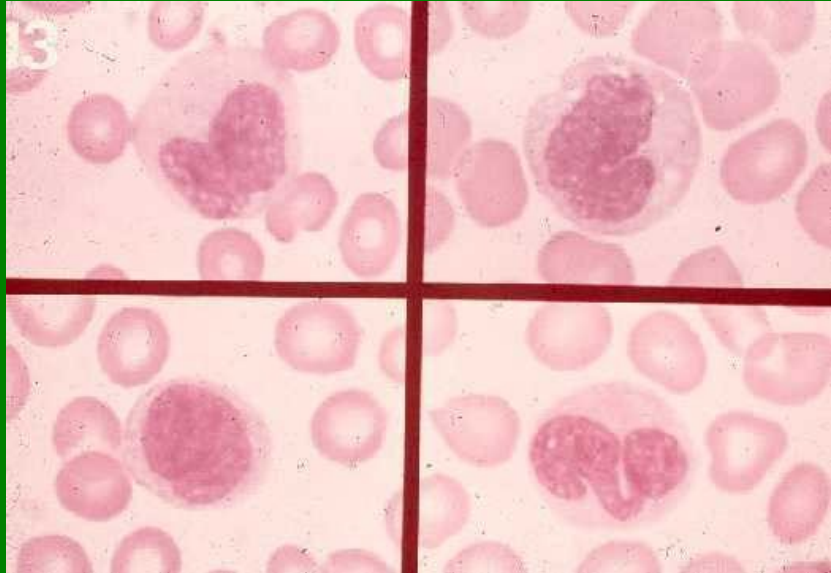
Eozinofily



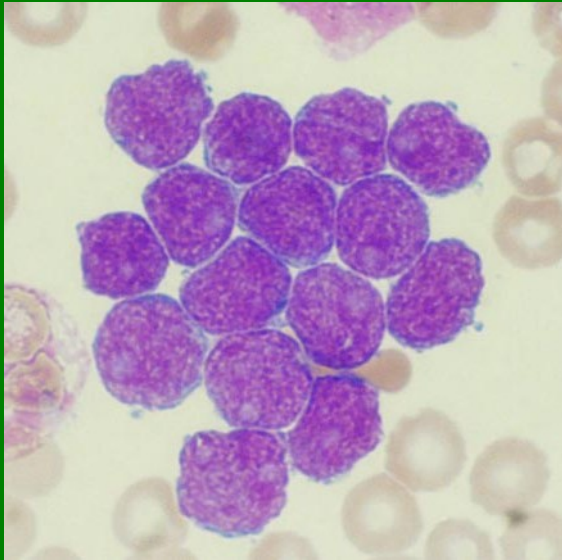
Bazofily



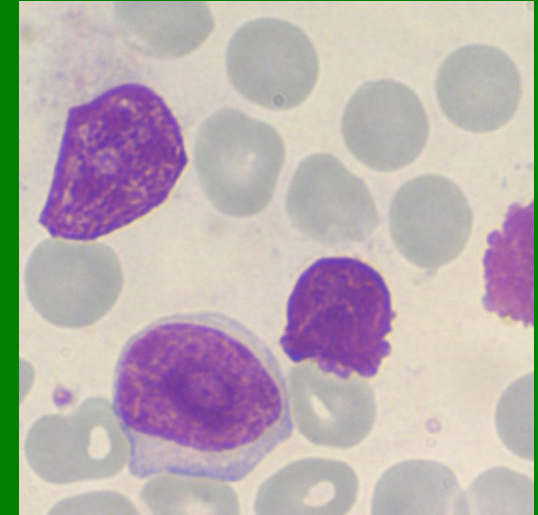
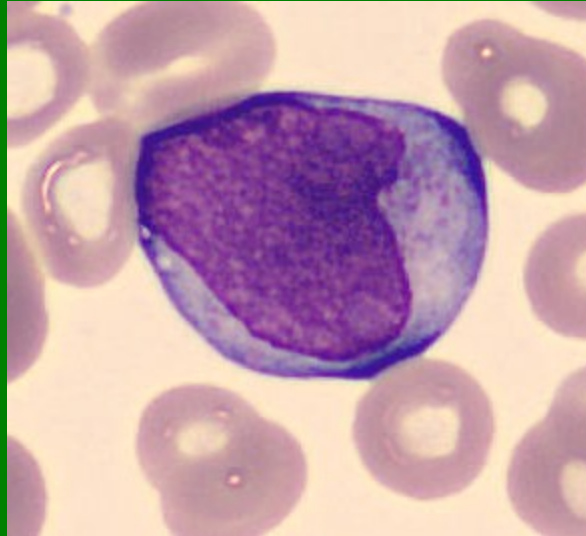
Monocyty



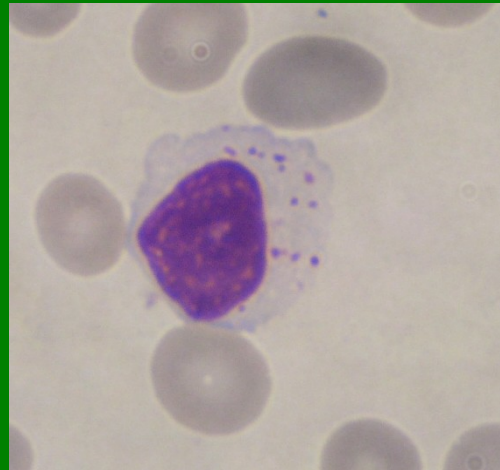
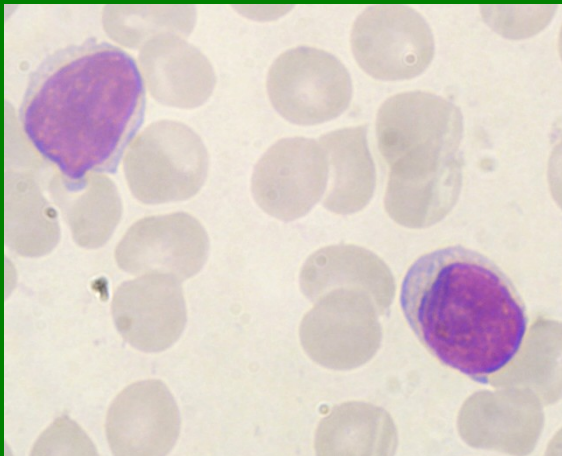
Lymfoblasty



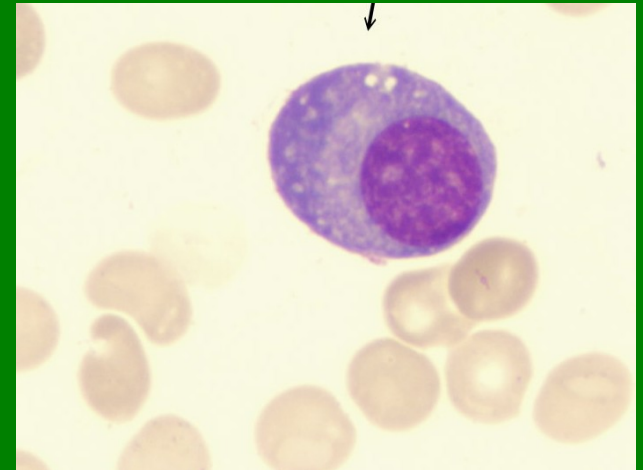
Prolymfocyt



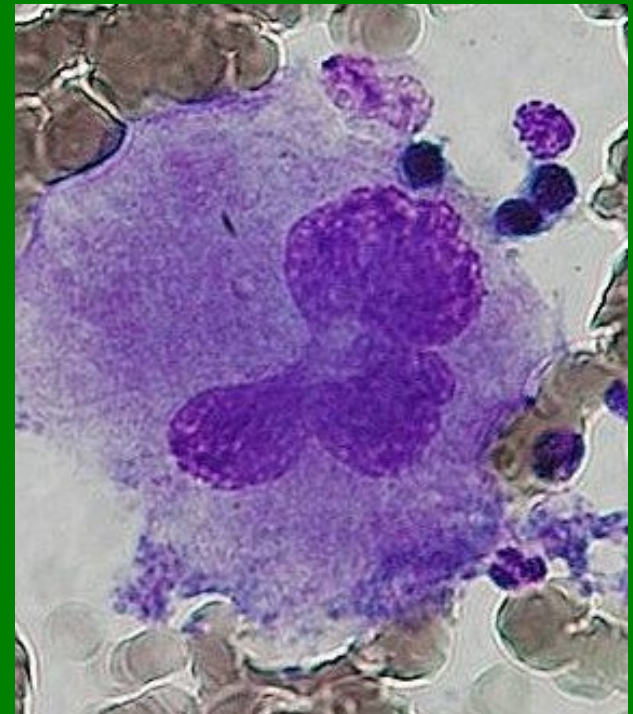
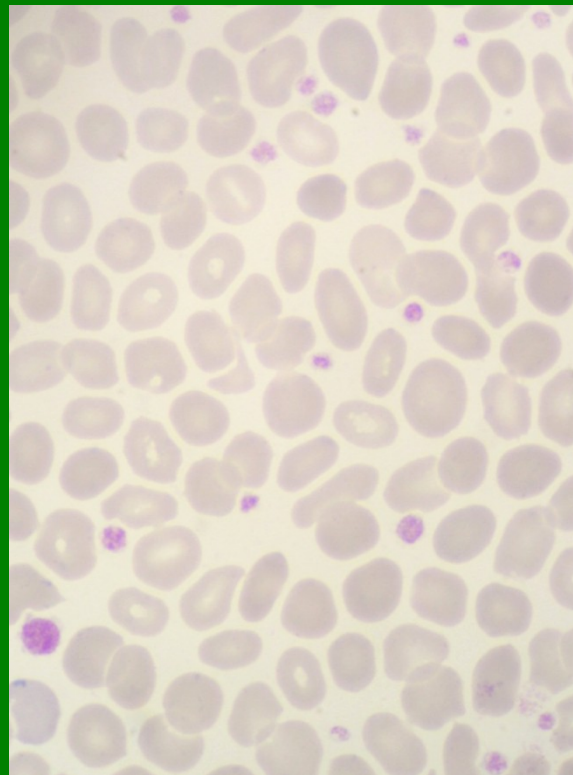
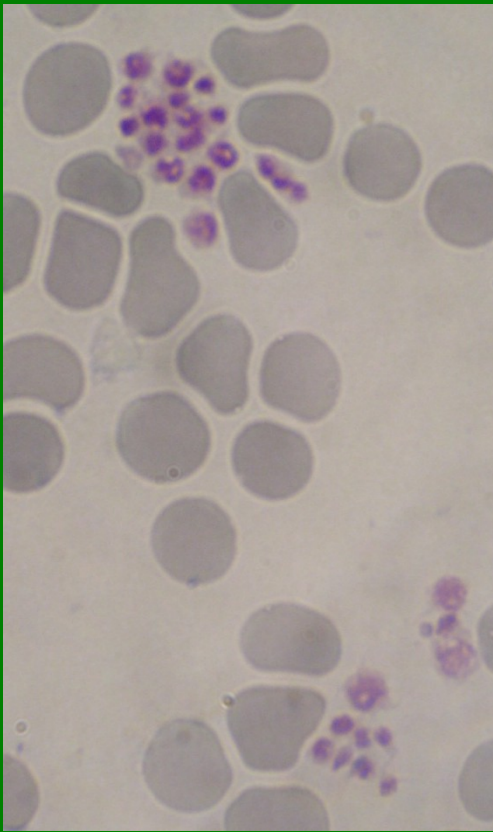
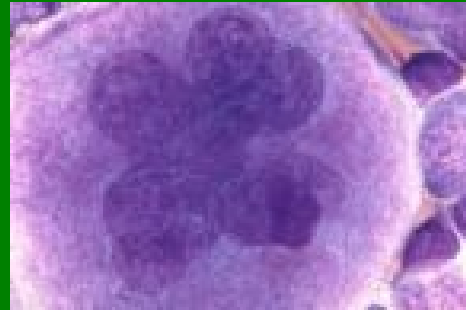
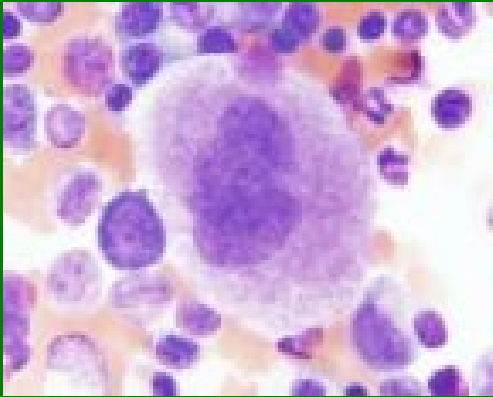
Lymfocyty



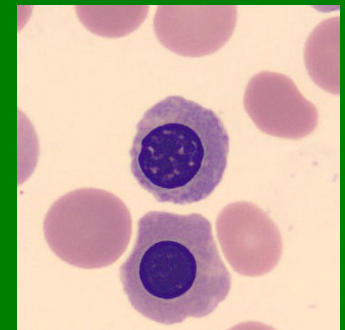
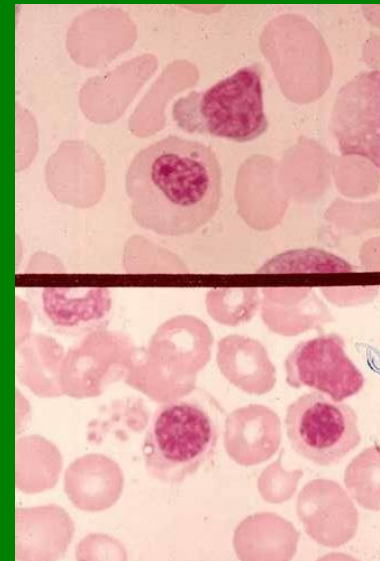
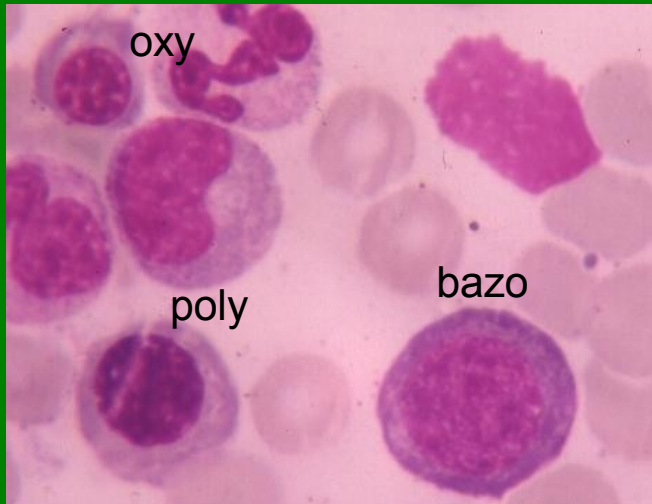
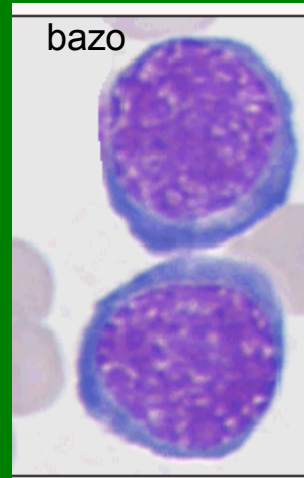
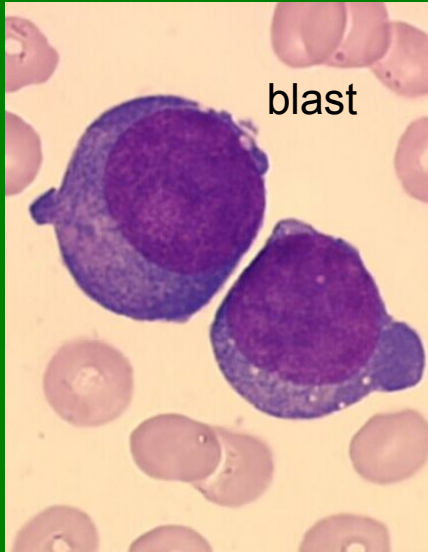
Plazmatická buňka



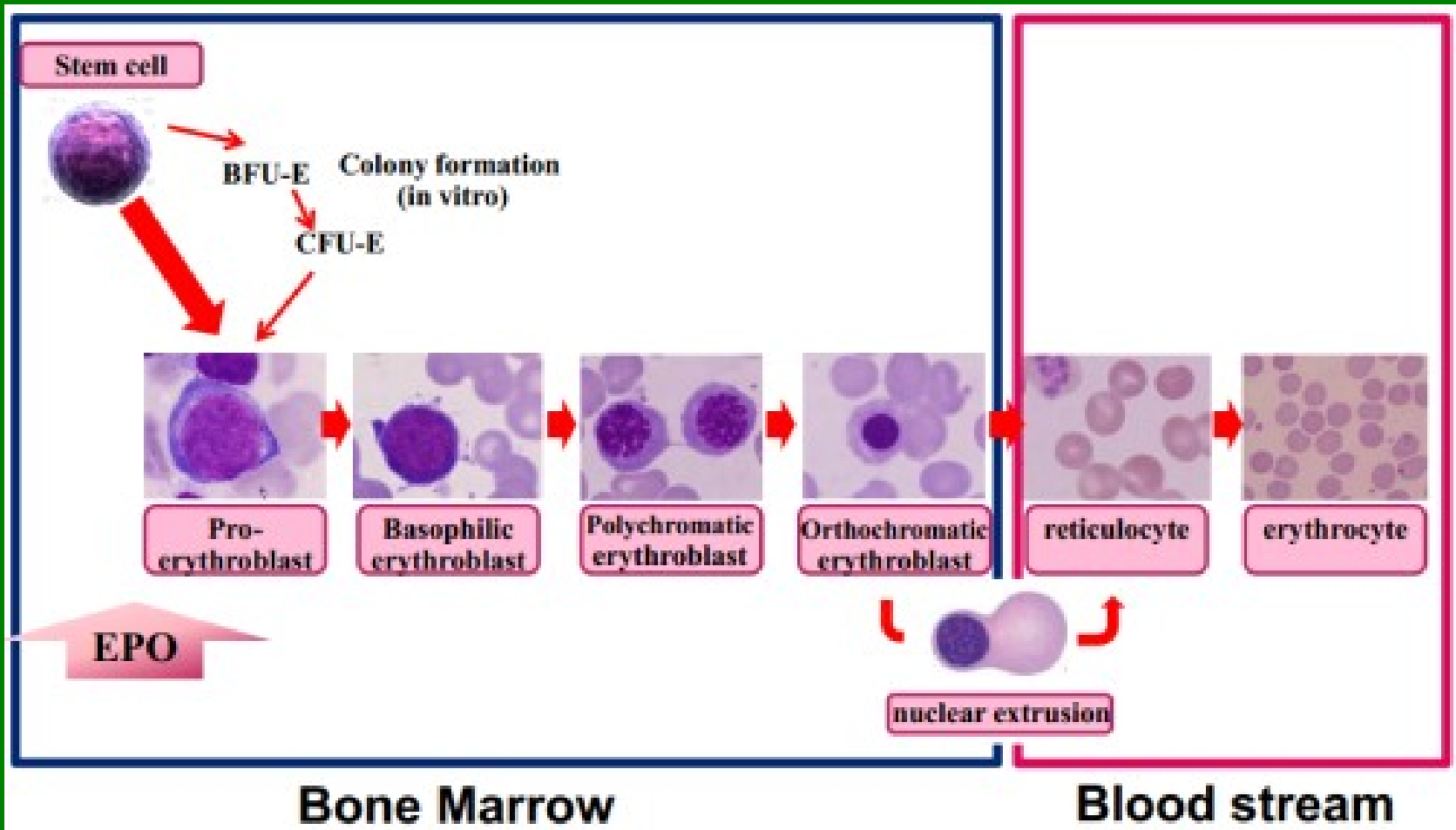
Megakaryocyty, PLT



NRBC

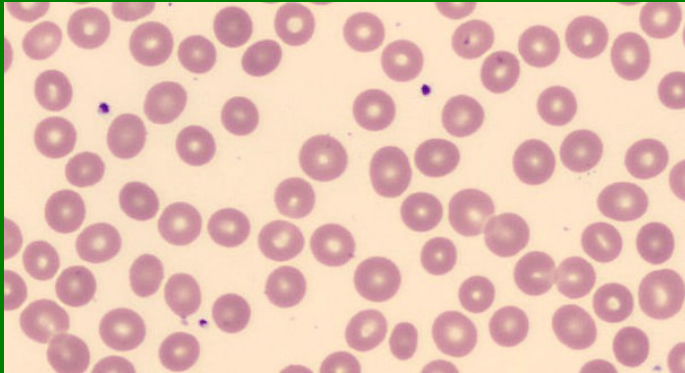


Vyžívání erytrocytů

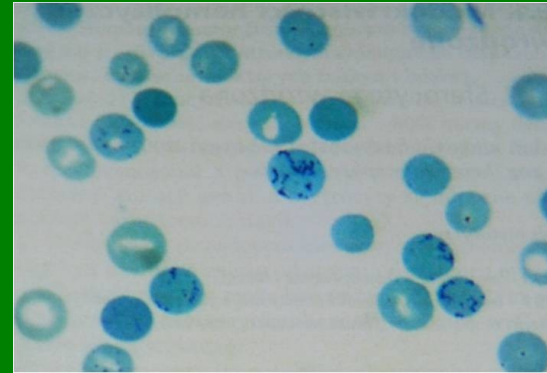


Retikulocyty

RBC/Retic?



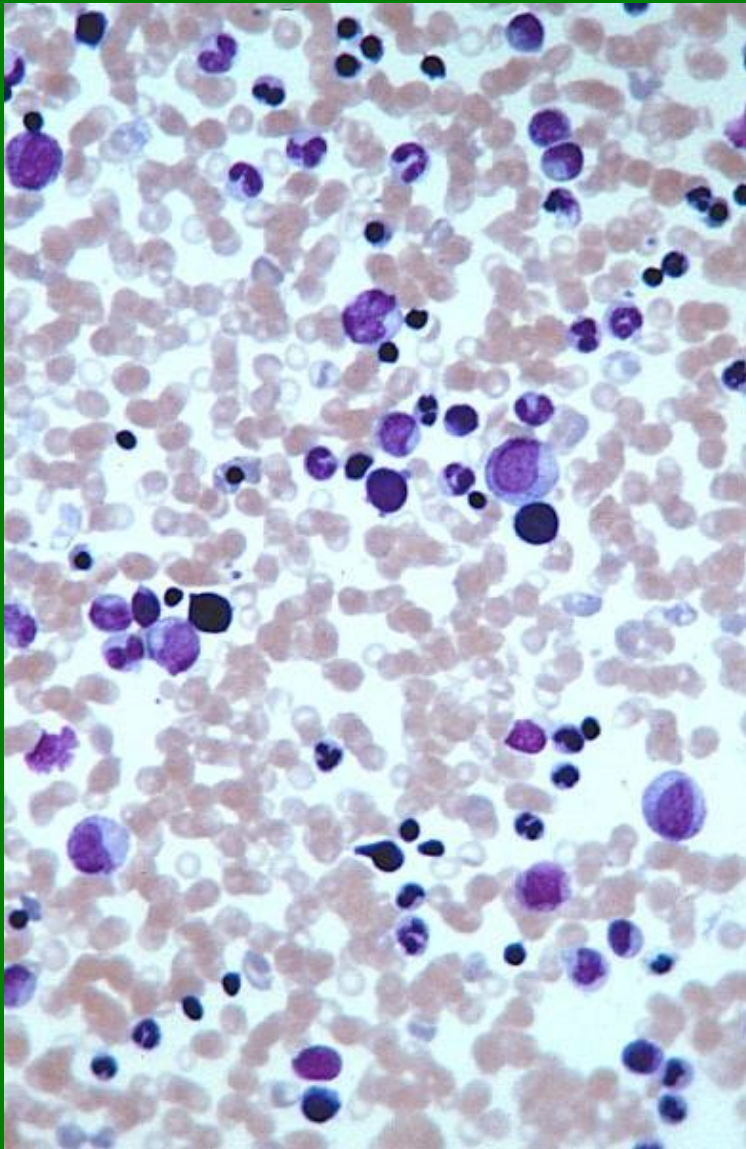
Retic



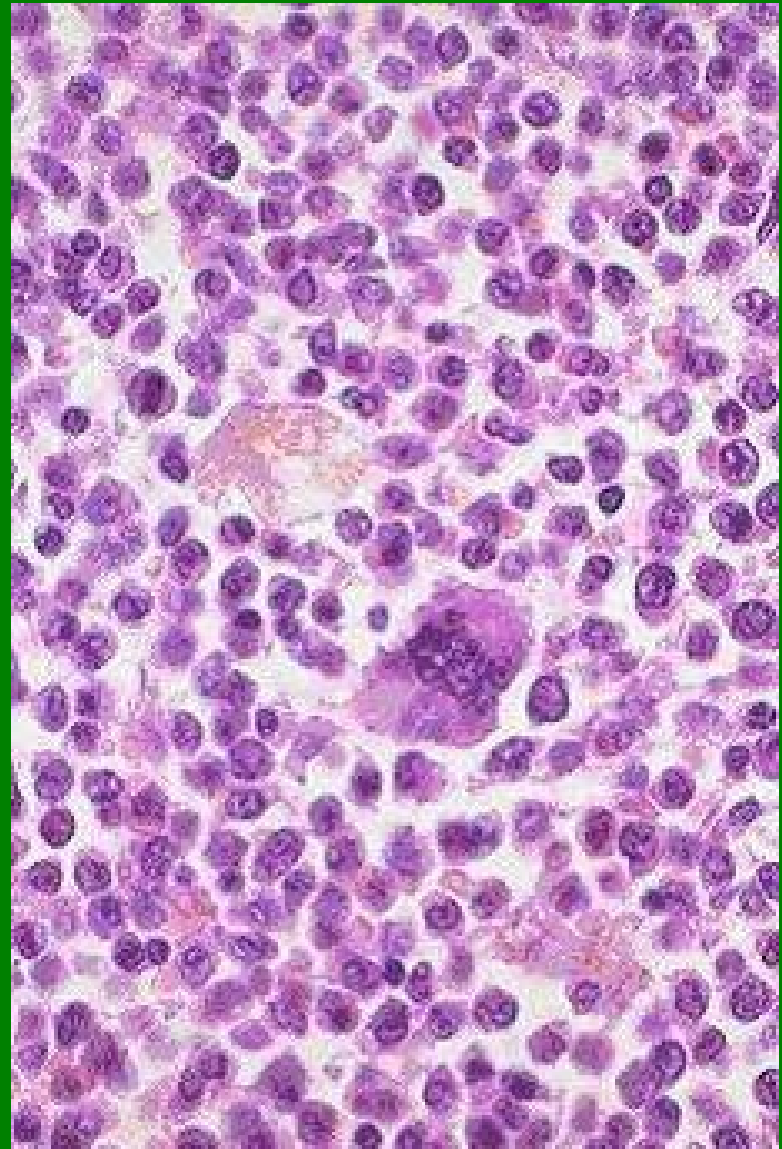
- větší než normocyty
- obsahují zbytky RNA v buněčných organelách (ribozomy, endoplazmatické retikulum)
- proto ještě může docházet k syntéze hemoglobinu
- průkaz speciálním barvením
(nelze prokázat běžným panoptickým barvením)

Kostní dřeň - buněčnost

normální



vysoká



Perinukleární projasnění

Golgiho zóna (návaznost na jádro přes endoplazmatické retikulum)

